

Operational Review Task Force Asset Inventory and Management Review

Asset Inventory and Management Team

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Background and Approach

The general approach of the Asset Inventory and Management team has been to conduct a high-level review the state of the Commonwealth's asset management practices, identify best practices in the asset management, and make recommendations that could improve or generate a ROI to the Commonwealth in this area. The team conducted conference calls with asset managers with the City of Chesapeake and the Virginia Department of Transportation who have already implemented more advanced asset management strategies. Additional conference calls were held with IBM asset management subject matter experts.

What is Asset Management?

Asset management best practices require an expanded view of asset classes and a holistic view of the asset lifecycle (i.e., the acquisition, use, maintenance, modification, and disposal of critical assets and properties). Asset management is vital to the Commonwealth's business performance and success. Effective asset management improves financial accountability and reduces the level of asset capitalization (i.e., asset investment) through effective utilization and maintenance strategies. Such strategies ensure more citizens benefit from the Commonwealth's asset investments and extend the useful life of Commonwealth assets. The more capital-intensive the operation, the more business performance is tied to the availability, maintenance and deployment of assets. Asset management requires advance planning on how managers can optimize their assets for business performance.

Some key concepts that are fundamental in how leading organizations should look at asset management include the maintenance excellence asset management pyramid, introduced by John D. Campbell in *Uptime*. This pyramid provides a fundamental yet holistic approach to understanding where an organization is in its maintenance maturity and can act as the baseline for where it wants to be (Figure 1.2).

The asset management life-cycle model, also introduced by Campbell, should be considered to ensure that each organization understands the full impact of an asset purchase or disposition and the role maintenance can play to promote the length and quality of the asset's life (Figure 1.3).

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Asset Management Excellence

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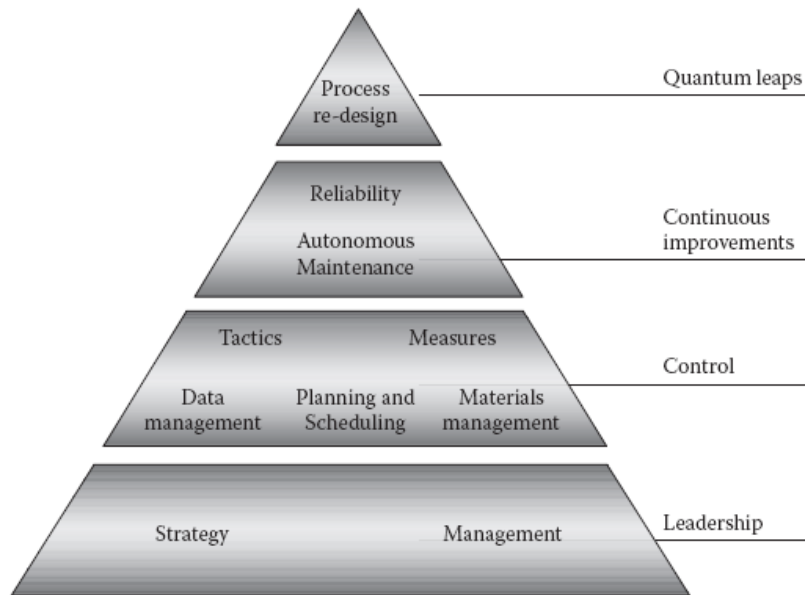


FIGURE 1.2 Maintenance Excellence Pyramid, adapted from John Dixon Campbell. Coopers & Lybrand Library (7).



FIGURE 1.3 Total Lifecycle Asset Management (8), "Strategy through to disposition."

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Other fundamental asset management concepts and strategies include:

- Asset management and configuration
 - Track asset detail, establish asset location and hierarchy, monitor asset conditions
- Work management
 - Manage resources, plans, and schedules
- Materials management
 - Track inventory transactions; integrate work management with materials management
- Procurement
 - Vendor management, vendor performance analysis, and key performance indicators (KPIs), event-driven purchasing, enterprise-wide leverage in spending analysis
- Contract management
 - Manage vendor contracts; manage alerts and notifications to optimize vendor service-level agreements (SLAs)
- Service management
 - Accept and manage new service requests, manage SLAs

The Evolution of Asset Management

In the past, asset management was most often described in terms of maintenance management with an exclusive focus on the programs, procedures, and tasks necessary to optimize uptime of an organization's equipment. Today, asset management requires active life-cycle management of the major assets and components from design and inception to disposal to achieve optimal asset worth.

A more strategic view of asset management first requires new consideration of which assets are to be managed. In a traditional view, assets may include only items from a few categories, such as machines, vehicles, or specific infrastructure. Alternatively, the responsibility for these items may have been lumped by their job function, financing scheme, or procurement categories. This old approach has several weaknesses. By ignoring important categories, the Commonwealth leaves its asset management to either chance or unstructured processes. By not taking a whole view of the asset portfolio, the Commonwealth may have difficulty prioritizing investment or cost-savings decisions.

In a traditional model, where different asset categories are managed separately, it can be nearly impossible to weigh decisions against one another. For example, a cost-reduction effort may be poorly executed if the decision maker cannot balance equipment acquisition and repair costs in the same analysis. It is easy to imagine internal turf wars resulting in overridden decisions that should be based on the Commonwealth's over-arching business strategy.

Imagine an agency mandated to cut costs that decides to improve margins by purchasing less expensive (and less reliable) equipment but doesn't make adjustments to its equipment repair capabilities. At the same time, the logistics group under the same cost-reduction mandate reduces the number of vehicles available. In the short term, these

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decisions return the mandated cost reduction; however, soon an increased amount of equipment breakdowns result in operational stoppages, and the lack of trucking capacity handicaps the agency's ability to bring in back-up equipment. The agency then has to rent emergency replacement assets, pay repair teams premiums to work overtime, and perform "damage control" for angry citizens whose services are disrupted. All in all, the inability to analyze different asset attributes cripples the agency's ability to drive cost reductions when they are needed the most.

Asset Management Challenges

Key challenges for the Commonwealth are to identify and categorize what really constitutes an asset and to determine whether to expand enterprise asset management strategies. For the purposes of this review, we describe assets in a physical sense and classify them into groupings such as real estate and facilities, plant and production, mobile assets, infrastructure, and information technology.



There are characteristics of each asset class that are unique to the assets typically found in that grouping. Conversely, some distinct similarities in the overarching processes must be addressed regardless of asset class. Several examples include the following:

What is Unique in Some of the Asset Classes?



■ RE and Facilities

- Asset hierarchies, value to stakeholders
- Focus on location, construction, lease management



■ Plant and Production

- RCM, TPM, Production ROA focus
- Configuration management



■ Infrastructure (Linear) Assets

- Asset hierarchies and data, by location
- Depreciation and maintenance forecasting focus



■ Mobile Assets

- Asset configurations, regulatory compliance
- Tracking mobile asset locations, timing of planned maintenance



■ IT Assets

- Asset configuration version management change management

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Enterprise asset management strategies could involve the expansion of the enterprise-wide efforts currently underway in the area of facilities management to other asset classes. Enterprise-wide strategies to address the recommendations made by the Auditor of Public Accounts (APA) in its Review of Deferred Maintenance in the Commonwealth in 2005 and follow-up report in 2009 are underway. Recommendations included:

- Requiring periodic detailed facility assessments for every Commonwealth-owned building
- Requiring agencies to perform a life cycle cost analysis, not only during the planning phase of a building, but once the building reaches the point when it is time to replace major systems and no later than when the cumulative cost of the needed repairs and replacements reach 60 percent of the current replacement value of the building, or has a Requirements Index of 0.60.
- Establishing policies and procedures for agencies and higher education institutions to collect, summarize, maintain, and update building assessment information by building tailored for the Commonwealth based on the manuals and guidance used during the initial population of FICAS.
- Requiring all agencies to complete at a minimum a life cycle assessment, but preferably a facility condition assessment.
- Establishing one uniform and consistent reporting mechanism across all state agencies and institutions of higher education to request capital outlay while making use of the FICAS system and the information it contains.

Total Life-Cycle Asset Management

The practice of total life-cycle asset management takes an expanded view of how assets are planned for, used, maintained, and ultimately disposed of. A traditional view often separates or ignores key phases within the asset life cycle. For example, in a conventional agency a procurement officer may be in charge of buying new mobile assets. He or she is motivated (and probably measured) on specific criteria for success, most likely negotiating cheap prices and meeting the needed number of assets. The maintenance of these assets is managed by someone else whose job is to keep repair costs down. The financing may be handled by another manager and the disposition and liquidation by yet another. While these job roles will always be needed, the agency may have hurt itself by not taking a complete view of the entire cycle. When these roles are managed separately, the following questions are pertinent: Were repair costs factored in at the time of purchase? Does the agency know the total cost of ownership? Could smarter costing be possible if finance and procurement worked with the entire portfolio? Whether the agency in our example suffered from a lack of knowledge is unclear, but the fact that it may not be able to find the answers at all demonstrates a primary shortcoming.

The asset management life-cycle model breaks down the life cycle of assets into discrete phases of activity. In practice, agencies should analyze their portfolio of assets (including the expanded view of asset classes) across the entire life cycle to make decisions and define asset strategy. The framework consists of eight life-cycle phases

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(see previous fig.1.3) of use and planning, each of which has supporting financial management and technology attributes to consider.

Asset Inventory and Management Team Recommendations

Adopt an expanded view of asset classes – this will allow agencies to have a wider and more complete influence over how they spend and control their key assets. This approach leaves fewer assets to be managed informally or by inconsistent procedures. By bringing more asset classes together (i.e., under a common purview and portfolio) the Commonwealth can make better decisions in support of the agency needs, including investment decisions, performance decisions, or compromises across the entire Commonwealth portfolio.

Set a comprehensive asset management strategy and vision that makes sense for the asset classes and business requirements – establishing executive sponsorship and ongoing advocacy of asset management leveraging the existing Commonwealth organizational structure and chain of command is essential. The Commonwealth would benefit by leveraging the existing asset management efforts led by the Department of General Services in the area of facilities management to other asset classes. Consideration should be given to establishing a Chief Asset Officer for the Commonwealth.

Clearly define asset targets, standards, metrics, policies, and procedures focusing on delivery of the asset management strategy – developing enterprise policies and standards and conducting portfolio asset management planning across the entire portfolio of assets can help the Commonwealth determine what value the assets deliver to the agencies.

Use technology as an asset management tool – technology can transform how asset management is planned for and executed. In an Enterprise Asset Management (EAM) system, models for planning and management are resident within a common, centralized system. Active cataloging, monitoring, and measurement of assets is also tracked, often in real time, to aid repair actions, to enable quick procurement and replacement decisions, and to monitor performance. Technology is also used to integrate the EAM with other key systems, such as accounting, procurement, and business performance management dashboards.